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Designing for Success
Software Evolution Process for the Department of Energy's Standard Security System

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The Department of Energy (DOE) has selected the Argus Security System as its standard for the protection of DOE sites handling special nuclear materials. DOE funded the development of Argus, a comprehensive integrated security system incorporating intrusion detection, access control, alarm assessment, dispatcher communications, event reporting, and archiving. The Argus system is currently operational at Lawrence Livermore National Laboratory, Pantex, Idaho National Engineering Laboratory and the Joint National Test Facility, a Department of Defense facility.

Argus software provides the foundation for complex levels of functionality (what it can do), performance (how well it can do it), adaptability (responsiveness to changing requirements), and configurability (ability to simultaneously support needs of different sites). LLNL has implemented an extremely effective process to support the evolution of Argus while minimizing operational costs and dependency on proprietary hardware and software. As each site is unique in operation and DOE orders are changing, it is vital for the software to keep pace with an ever changing environment. The process for tracking and implementing software and hardware changes was originated in 1987 with the original software. Since that time the Argus system has evolved through nineteen system release cycles. The process consists of four main phases: change control and prioritization, software development, product testing, and release and distribution. Throughout this process strict levels of configuration management and Quality Assurance are maintained. Two events crucial to the success of each release cycle are (1) a technical interchange, a informational meeting to communicate upcoming release plans, discuss functionality, set priorities, and solicit client feedback, and (2) client testing, an opportunity for users to actually test the pre-released software and provide feedback to the developers before software is finalized.

Key to the success of this process is the constant cycle of improvement and evaluation of the Argus system.

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